

We claim:

1. An apparatus for demineralizing osteoinductive bone, comprising:

a container for holding demineralization solution and the osteoinductive bone;

a vessel cap covering said container, said vessel cap containing a first port, and a second

5 port for introducing the osteoinductive bone into said container;

a filter tube assembly disposed within said first port for transporting said demineralization solution into and out of said container, said filter tube assembly being configured to exclude particles larger than a prescribed size;

a pump for removing said demineralization solution from said container; and

10 a first tube connecting said first port to said pump.

2. The apparatus of claim 1, wherein said filter tube assembly contains a plurality of openings along a predetermined portion thereof.

15 3. The apparatus of claim 1, further comprising a port filter assembly disposed within said second port for maintaining a sterile environment in said apparatus.

4. The apparatus of claim 3, wherein said port filter assembly provides a gas permeable seal.

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5. The apparatus of claim 3, wherein said port filter assembly comprises a fritted filter disposed within an O-ring, said O-ring surrounded by a retaining ring.

6. The apparatus of claim 1, wherein said filter tube assembly is configured to exclude particles larger than 300 μ .

7. The apparatus of claim 1, wherein said filter tube assembly is configured to exclude
5 particles larger than 225 μ .

8. The apparatus of claim 1, wherein said filter tube assembly is configured to exclude particles larger than 125 μ .

10 9. The apparatus of claim 1, wherein said container, said vessel cap, said filter tube assembly, and said first tube are constructed from a material having prescribed properties for preventing a chemical reaction with said demineralization solution.

15 10. The apparatus of claim 9, wherein said material is selected from the group consisting of Teflon, glass, and ceramic.

11. The apparatus of claim 1, further comprising a second tube connecting said second port to a vessel coupled to said pump.

20 12. The apparatus of claim 11, wherein an ion exchange media is disposed within said vessel for regenerating said demineralization solution removed from said container.

13. The apparatus of claim 11, wherein said pump is operated at a rate of about 0.25 to 4.0 liters per min.

14. The apparatus of claim 11, wherein said pump is operated at a rate of about 0.5 to 2.0
5 liters per min.

15. The apparatus of claim 11, wherein said pump is operated at a rate of about 1.0 liter per min.

10 16. The apparatus of claim 12, wherein said ion exchange media comprises a strong cation exchange resin.

17. The apparatus of claim 12, wherein said ion exchange media comprises a strong anion exchange resin.

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18. The apparatus of claim 12, wherein said ion exchange media comprises a strong cation exchange resin and a strong anion exchange resin.

19. An apparatus for demineralizing osteoinductive bone, comprising:
20 a container for holding demineralization solution and the osteoinductive bone;
a vessel cap covering said container, said vessel cap containing a first port, and a second port for introducing the osteoinductive bone into said container;

a filter tube assembly disposed within said first port for transporting said demineralization solution into and out of said container,

said filter tube assembly being configured to exclude particles larger than a prescribed size, and

5 said filter containing a plurality of openings along a predetermined portion thereof;
a pump for removing said demineralization solution from said container; and
a first tube connecting said first port to said pump.

20. An apparatus for demineralizing osteoinductive bone, comprising:

10 a container for holding demineralization solution and the osteoinductive bone;

a vessel cap covering said container, said vessel cap containing a first port, and a second port for introducing the osteoinductive bone into said container;

a filter tube assembly disposed within said first port for transporting said demineralization solution into and out of said container,

15 said filter tube assembly being configured to exclude particles larger than 125 μ , and
said filter containing a plurality of openings along a predetermined portion thereof;
a pump for removing said demineralization solution from said container; and
a first tube connecting said first port to said pump.

20 21. An apparatus for demineralizing osteoinductive bone, comprising:

a container for holding demineralization solution and the osteoinductive bone;

a vessel cap covering said container, said vessel cap containing a first port, and a second port for introducing the osteoinductive bone into said container;

a filter tube assembly disposed within said first port for transporting said demineralization solution into and out of said container, said filter tube assembly being configured to exclude particles larger than a prescribed size;

a pump for removing said demineralization solution from said container;

5 a first tube connecting said first port to said pump; and

a second tube connecting said second port to a vessel coupled to said pump, wherein an ion exchange media is disposed within said vessel for regenerating said demineralization solution removed from said container.

10 22. An apparatus for demineralizing osteoinductive bone, comprising:

a container for holding demineralization solution and the osteoinductive bone;

a vessel cap covering said container, said vessel cap containing a first port, and a second port for introducing the osteoinductive bone into said container;

a filter tube assembly disposed within said first port for transporting said

15 demineralization solution into and out of said container,

said filter tube assembly being configured to exclude particles larger than 125 μ , and

said filter containing a plurality of openings along a predetermined portion thereof;

a pump for removing said demineralization solution from said container;

a first tube connecting said first port to said pump; and

20 a second tube connecting said second port to a vessel coupled to said pump, wherein an

ion exchange media is disposed within said vessel for regenerating said demineralization solution removed from said container.